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## Safety data sheet: Z-SUPPORT Plus

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ UNDERTAKING

#### 1.1. PRODUCT IDENTIFIER

Trade name: Z-SUPPORT Plus  
Generic name: PVA  
Material type: thermoplastic

#### 1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Identified use: thermal processing for 3D printing in Layer Plastic Deposition (LPD) technology.  
Use advised against: other than listed above

#### 1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier: Zortrax S.A.  
Lubelska 34  
10-409 Olsztyn  
Poland  
TEL. +48 89 672 40 01  
Made in: EU

#### 1.4. EMERGENCY TELEPHONE NUMBER

Emergency telephone number: 112

### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

This product is not classified as dangerous according to Regulation (EC) No 1272/2008.

#### 2.2. LABEL ELEMENTS

Hazard pictogram(s): not applicable  
Signal word(s): not applicable  
Hazard statement(s): not applicable  
Precautionary statement(s): not applicable

### 2.3. OTHER HAZARDS

There is a risk that fine particles of the material may form an explosive mixture with air. The product does not ignite easily but adequate precautions are needed to minimize the hazard of dust explosions.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. SUBSTANCES

Not applicable

### 3.2. MIXTURES

Components	Concentration [%]	CAS-No.	Classification (1272/2008/EC)
Polyvinyl alcohol	> 95	NA	
Methanol	< 1	67-56-1 200-659-6	Flam. Liq. 2; H225 Acute. Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370
Styrene	< 0.001	100-42-5 202-851-5	Flam. Liq. 3; H226 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repr. 2; H361d

## SECTION 4. FIRST AID MEASURES

### 4.1. DESCRIPTION OF FIRST AID MEASURES

Eye contact:	immediately rinse eyes with water. In case of irritation, contact a physician.
Skin contact:	if molten material comes into contact with the skin, cool immediately with cold water. Removal of solidified molten material from skin as well as treatment of burns require medical assistance.
Ingestion:	remove material residues from mouth and rinse mouth with water. Drink plenty of water. Do NOT induce vomiting. In case of discomfort, contact a physician.
Inhalation:	provide fresh air. In case of noticing worrying symptoms, consult a physician.

### 4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Most important symptoms/effect: no data available

### 4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Notes to physician: treat symptomatically

## SECTION 5. FIREFIGHTING MEASURES

### 5.1. EXTINGUISHING MEDIA

Suitable extinguishing media: fine spray or water mist, dry powder, foam, carbon dioxide (CO<sub>2</sub>).

Unsuitable extinguishing media: high volume water jet.

### 5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Special hazards arising from the substance or mixture: burning produces irritating and noxious fumes/gases, smoke, carbon monoxide, carbon dioxide.

### 5.3. ADVICE FOR FIREFIGHTERS

Special protective equipment for firefighters: self-contained breathing apparatus and full firefighting protective gear.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### 6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Use personal protective equipment. Avoid contact with eyes and skin. Do not breathe vapors. In case of failure in a confined space, ensure proper ventilation. Remove sources of ignition and extinguish open flame.

### 6.2. ENVIRONMENTAL PRECAUTIONS

Prevent or limit further leakage if possible. Avoid discharge of the product into drain, ground and surface water.

### 6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Sweep up and gather solidified material into appropriate containers for disposal. Collected material treat as waste.

### 6.4. REFERENCE TO OTHER SECTIONS

See SECTION 8 for personal protection information. See SECTION 13 for disposal considerations.

## SECTION 7. HANDLING AND STORAGE

### 7.1. PRECAUTIONS FOR SAFE HANDLING

Handle in accordance with general safety regulations. Use personal protective equipment. Ensure proper ventilation. Avoid contact with molten material. Do not eat, drink or smoke when using the product. Do not ingest.

### 7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in tightly closed packaging in a dry and cool room away from hot surfaces and sources of ignition. Protect from moisture and direct sunlight. Avoid storage in elevated temperatures for prolonged periods of time.

### 7.3. SPECIFIC END USE(S)

See SECTION 1.2.

Exposure scenario: no data available

Other guidelines: no data available

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. CONTROL PARAMETERS

Components	CAS-No.	Control Parameters	Basis
Methanol	67-56-1	TWA: 266 mg/m <sup>3</sup> , 200 ppm Sk STEL: 333 mg/m <sup>3</sup> , 250 ppm Sk	2006/15/EC
Styrene	100-42-5	1080 mg/m <sup>3</sup> , 250 ppm 430 mg/m <sup>3</sup> , 100 ppm 170 mg/m <sup>3</sup> , 40 ppm 85 mg/m <sup>3</sup> , 20 ppm	GB: WEL-STEL GB: WEL-TWA Ireland: 15 minutes Ireland: 8 hours
Dust	-	4 mg/m <sup>3</sup> respirable dust 10 mg/m <sup>3</sup> inhalable dust	TWA

Other information on limit values: see SECTION 16.

### 8.2. EXPOSURE CONTROLS

Appropriate engineering controls:

store at temperatures between 20 and 30°C. Ensure proper ventilation, especially in confined spaces.

Individual protection measures, such as personal protective equipment:

Eye protection:

wear safety glasses with side-shields.

Skin protection:

wear heat-resistant gloves when handling molten material.

Respiratory protection:

when working in spaces with high temperatures and with poor ventilation, use breathing equipment with particle filter.

Thermal hazards:

no fire hazard under normal use conditions.

Environmental exposure controls:

no data available

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	filament
Physical state:	solid (compressed)
Colors:	natural
Odor:	odourless to mild
Odor threshold:	no data available
pH:	not applicable
Melting point/freezing point:	> 200° C
Initial boiling point and boiling range:	not applicable
Flash point:	> 400°C
Evaporation rate:	not applicable
Flammability:	no data available
Upper/lower flammability or explosive limits:	no data available
Vapor pressure:	not applicable
Vapor density:	not applicable
Relative density:	1,04 g/cm <sup>3</sup>
Solubility:	soluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	not self-igniting
Decomposition temperature:	~ 300 °C
Viscosity:	not applicable
Explosive properties:	dust explosion risk at fine dust
Oxidizing properties:	no data available

### 9.2. OTHER INFORMATION

Miscibility:	immiscible
Fat solubility:	no data available
Conductivity:	no data available
Gas group:	no data available

## SECTION 10. STABILITY AND REACTIVITY

### 10.1. REACTIVITY

No reactivity under normal storage conditions.

### 10.2. CHEMICAL STABILITY

Stable under normal storage conditions.

### 10.3. POSSIBILITY OF HAZARDOUS REACTIONS

In case of dust (fine dust): danger of dust explosion

### 10.4. CONDITIONS TO AVOID

Sources of heat, ignition and moisture. Working in spaces with poor ventilation.

### 10.5. INCOMPATIBLE MATERIALS

Strong oxidizing agents and strong acids.

### 10.6. HAZARDOUS DECOMPOSITION PRODUCTS

No decomposition under normal conditions. Combustion products: see SECTION 5.2.

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity: Methanol:	Oral LD50 1187 - 2769 mg / kg, Species: rat Skin LD50 17100 mg / kg: Species: rabbit Inhalation LC50 128200 mg / L: Species: rat Exposure time: 4 h,
Skin corrosion/irritation	no data available
Serious eye damage/irritation	no data available
Respiratory or skin sensitization	no data available
Germ cell mutagenicity:	no data available
Carcinogenicity:	Not classifiable as to its carcinogenicity to humans.
Reproductive toxicity:	no data available
STOT-single exposure:	no data available
STOT-repeated exposure:	no data available
Aspiration hazard:	not classified

## SECTION 12. ECOLOGICAL INFORMATION

### 12.1. TOXICITY

Toxicity to fish  
Methanol:

Lepomis Macrochirus: 15400 mg/L.  
Exposure time: 96 h.

Toxicity to crustacea  
Methanol:

Daphnia magna (water flea): > 10000 mg/L:  
Exposure time: 48 h.

Toxicity to algae  
Methanol:

Algae: > 22000 mg/L.  
Exposure time: 96 h.

### 12.2. PERSISTENCE AND DEGRADABILITY

No data available

### 12.3. BIOACCUMULATIVE POTENTIAL

No data available

### 12.4. MOBILITY IN SOIL

No data available

### 12.5. RESULTS OF PBT AND VPVB ASSESSMENT

The product does not meet the criteria for PBT or vPvB classification.

### 12.6. OTHER ADVERSE EFFECTS

See SECTION 6.2.

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1. WASTE TREATMENT METHODS

Do not discard into water courses or onto the ground. When used as a support material for 3D printing, it can be disposed of through the drain. Waste and empty containers should be disposed of in accordance with local regulations.

## SECTION 14. TRANSPORT INFORMATION

### 14.1. UN NUMBER

DOT, ADR, IMDG, IATA – not applicable

**14.2. UN PROPER SHIPPING NAME**

DOT, ADR, IMDG, IATA – not applicable

**14.3. TRANSPORT HAZARD CLASS(ES)**

DOT, ADR, IMDG, IATA – not applicable

**14.4. PACKING GROUP**

DOT, ADR, IMDG, IATA – not applicable

**14.5. ENVIRONMENTAL HAZARDS**

DOT, ADR, IMDG, IATA – not applicable

**14.6. SPECIAL PRECAUTIONS FOR USER**

DOT, ADR, IMDG, IATA – not applicable

**14.7. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL AND THE IBC CODE**

Not applicable

**SECTION 15. REGULATORY INFORMATION**

**15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE**

Directive 96/82/EC - not applicable

**15.2. CHEMICAL SAFETY ASSESSMENT**

A chemical safety assessment for the product has not been carried out.



## SECTION 16. OTHER INFORMATION

Full text of H-Statements referred to under SECTIONS 2 and 3.

H225 - Highly flammable liquid and vapour.  
H226 - Flammable liquid and vapour  
H301 - Toxic if swallowed.  
H311 - Toxic in contact with skin.  
H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.  
H331 - Toxic if inhaled.  
H361d - Suspected of damaging the unborn child.  
H370 - Causes damage to organs.

This Safety Data Sheet has been prepared on the basis of the currently available data on the product as well as of the Manufacturer's experience and knowledge. It should be treated as a guide for safe transportation, storage and handling. The given information is not to be considered as a warranty or quality specification. Additionally, it is the user's responsibility to handle the product in accordance with local regulations and standards.

Changes introduced in the update:

Section 1-16

End of Safety Data Sheet



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